National Cooperative Dairy Herd Improvement Program

RECORD BOOK

A plan for every size herd

OFFICIAL DHI | OWNER SAMPLER | WEIGH-A-DAY-A-MONTH

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Dairy-Herd-Improvement Letter

August 1971

Agricultural Research Service

UNITED STATES DEPARTMENT OF AGRICULTURE

USDA-DHIA HERD AVERAGE SUMMARIES 1970-1971[1/]

1971 Official DHI Averages - 13,000# Milk, 489# Fat

1971 Owner-Sampler Averages - 12,413# Milk, 460# Fat

This letter contains herd averages on a State and national basis for milk and fat production, feed, feed cost, and milk value for the 1971 DHIA test year (May 1, 1970--April 30, 1971) for the Official DHI and the Owner-Sampler plans. Two sets of data are presented. One includes production data only which includes all herds. A separate set includes production data and averages for feed amounts, feed costs, and milk price for fewer herds, those for which feed and price information are reported. The 11 processing centers compile and send the records to the Dairy Herd Improvement Investigations (DHII) group, USDA, for all herds completing a 12-month testing period by the end of the State test year (ending within the national test year).

Tables are presented to show the cow-year production averages for Official DHI testing and for Owner-Sampler testing. These production averages are applied to the respective enrollment in each plan and quoted as the production averages for the United States. We have long referred to those herd records containing feed, feed cost, and milk price information as "complete herds." We will continue to do so in this letter. Production values that accompany the records having feed and cost information are given in these tables also. They differ from those in the tables for production levels only, because more herds and cows are included in the latter tables.

DHII computer personnel subject the records to several edits, including ones for record duplication, correct test year, and data items being within established limits. The

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Issued December 1971

tables presented for production summaries and for complete herds include only the records that passed DHII edits. This year, 90 percent of the cows enrolled in Official DHI were included in valid records for production, and 56 percent were included in valid complete records.

Official DHI herd summaries.--The resulting summaries showed that in the 1971 test year, Official DHI cows reached 13,000 pounds average milk production and 489 pounds average fat production. These are increases of 250 pounds of milk and 6 pounds of fat over the previous test-year averages. The number of cows per herd averaged 65.0 in 1971, up from 62.2 in 1970.

For 1971, the records of 1,995,463 cows in 30,699 herds on Official DHI test were reported--an increase of 58,073 cows and a decrease of 439 herds compared to 1970.

Table 1 lists State and national totals for herds and cow-years and averages for cows per herd, percent days in milk, and milk and fat production for Official DHI in 1971. In addition to changes reported earlier, fat percent decreased from 3.79 in 1970 to 3.76 in 1971. Average percent days in milk stayed constant at 85. Linear regression of production on years for the last 16 years shows an increase of 227 pounds of milk per year.

Table 2 includes the State and national totals for herds and cows and averages for percent days in milk, production, feed amounts, value of product, cost of concentrates, and feed cost for Official DHI herds submitting this information. Concentrates fed increased 100 pounds; succulent forage fed decreased 800 pounds; dry forage increased 100 pounds; and pasture days reported decreased 9 days. Value of production increased 31 dollars, and feed cost increased 14 dollars, so that income over feed cost, at 480 dollars, increased 17 dollars over 1970.

Figure 1 shows these trends as well as the trends for concentrates fed, value of product, cost of concentrates, feed

cost, and income over feed cost. The arrows indicate the breed average trend. Figure 1 shows the same trends for 1971 as for 1970 in all but six cases. Holstein herds and cows showed increases, and the amount of concentrates fed remained the same for all breeds except Guernsey.

Breed and year	Herds	Cows	Milk prod.	Conc. fed	Conc. cost	Value prod.	Feed cost	Income/ FC
Ayrshire								
1969	↑	↑	↑	↑	↓	↑	↓	↑
1970	↓	↓	↑	↑	↑	↑	↑	↑
1971	↓	↓	↑	↔	↑	↑	↑	↑
Guernsey								
1969	↓	↓	↑	↔	↓	↑	↓	↑
1970	↓	↓	↑	↑	↑	↑	↑	↑
1971	↓	↓	↑	↑	↑	↑	↑	↑
Holstein								
1969	↔	↑	↑	↑	↓	↑	↓	↑
1970	↓	↓	↑	↑	↑	↑	↑	↑
1971	↑	↑	↑	↔	↑	↑	↑	↑
Jersey								
1969	↓	↓	↑	↑	↔	↑	↓	↑
1970	↓	↓	↑	↑	↑	↑	↑	↑
1971	↓	↓	↑	↔	↑	↑	↑	↑
Brown Swiss								
1969	↓	↑	↓	↔	↓	↑	↓	↑
1970	↓	↓	↑	↑	↑	↑	↑	↑
1971	↓	↓	↑	↔	↑	↑	↑	↑

Figure 1.--Trends for selected factors of the herd record by breed, 1968 through 1971. (Each arrow indicates trend of the given year from the previous year.)

The changes in feeding from 1970 to 1971 were less than the changes predicted from previous data. Linear regression of concentrates on years is 164 pounds per year; the value for succulent forage is 441 pounds. The value for dry forage is -53 pounds, indicating a trend toward feeding less dry forage.

Table 3 is the tabulation of the Official DHI complete herds by breed for the five major breeds, with each breed's records stratified by level of milk production. These tables are on a herd average basis. All breeds lost herd and cow numbers except Holsteins.

Figures 2 through 6 show the relationship of herd average milk yield to value of product and feed cost per cow in Official DHI herds in each of the five breeds. The trends are similar for each breed. The value of product per cow rises more rapidly than feed cost as the level of production increases. These relationships show the economic gains that can be achieved by proper management, feeding, and breeding.

At several milk production levels 1,000 pounds apart for the various breeds, the estimated income per cow per year remaining after subtracting twice the feed cost was as shown in table 4 for 1968, 1969, 1970, and 1971. These figures need to be reduced to a constant dollar basis to adjust for inflation.

Owner-Sampler herd summaries.--In the 1971 test year, 612,080 cows in 16,569 herds on Owner-Sampler test reported records averaging 12,413 pounds of milk and 460 pounds of fat.

Summaries of Owner-Sampler herd records for 1971 are shown in tables 5, 6, and 7. The Official DHI-Owner-Sampler milk production ratio remained almost the same as in 1970--95.5 percent compared to 95.6 percent in 1970.

Trends in production and feeding were much the same for Owner-Sampler as for Official DHI herds.

Superiority of tested cows.--Figure 7 and table 7 show the production levels of cows on Official DHI test and Owner-Sampler test and of all other cows. Official DHI cows now

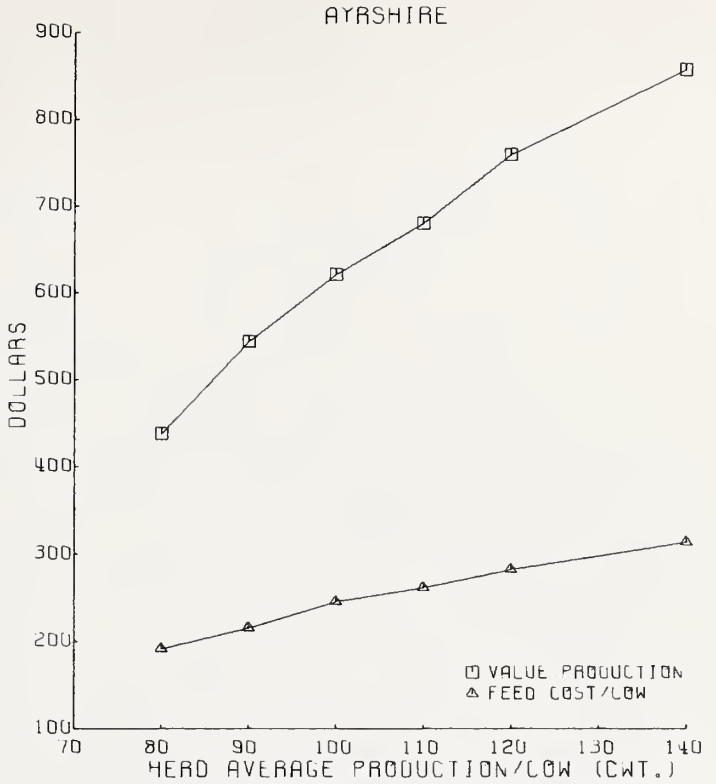

Figure 2.--Relationship of herd average milk yield to value of product and feed cost per cow for Ayrshire herds on Official DHI test

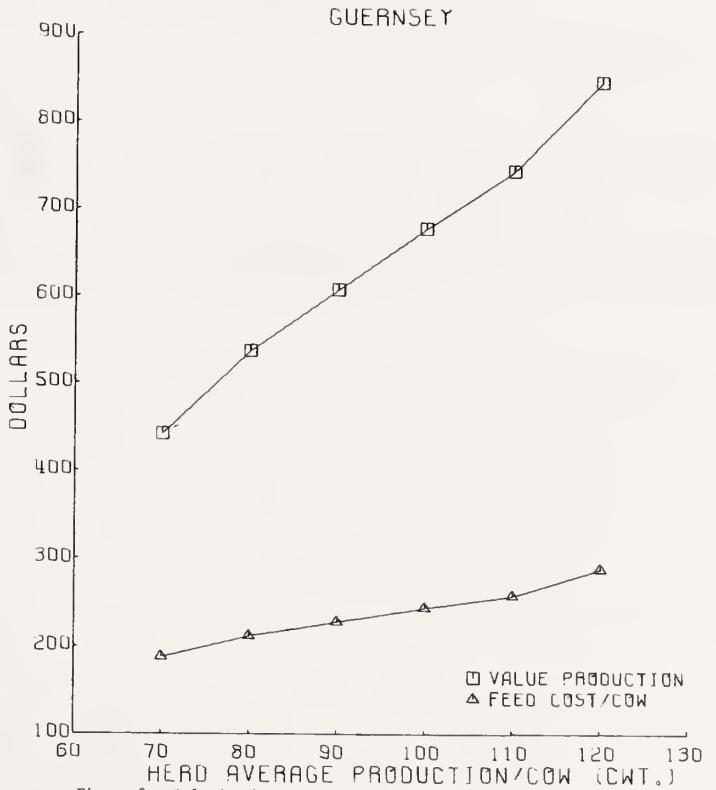

Figure 3.--Relationship of herd average milk yield to value of product and feed cost per cow for Guernsey herds on Official DHI test

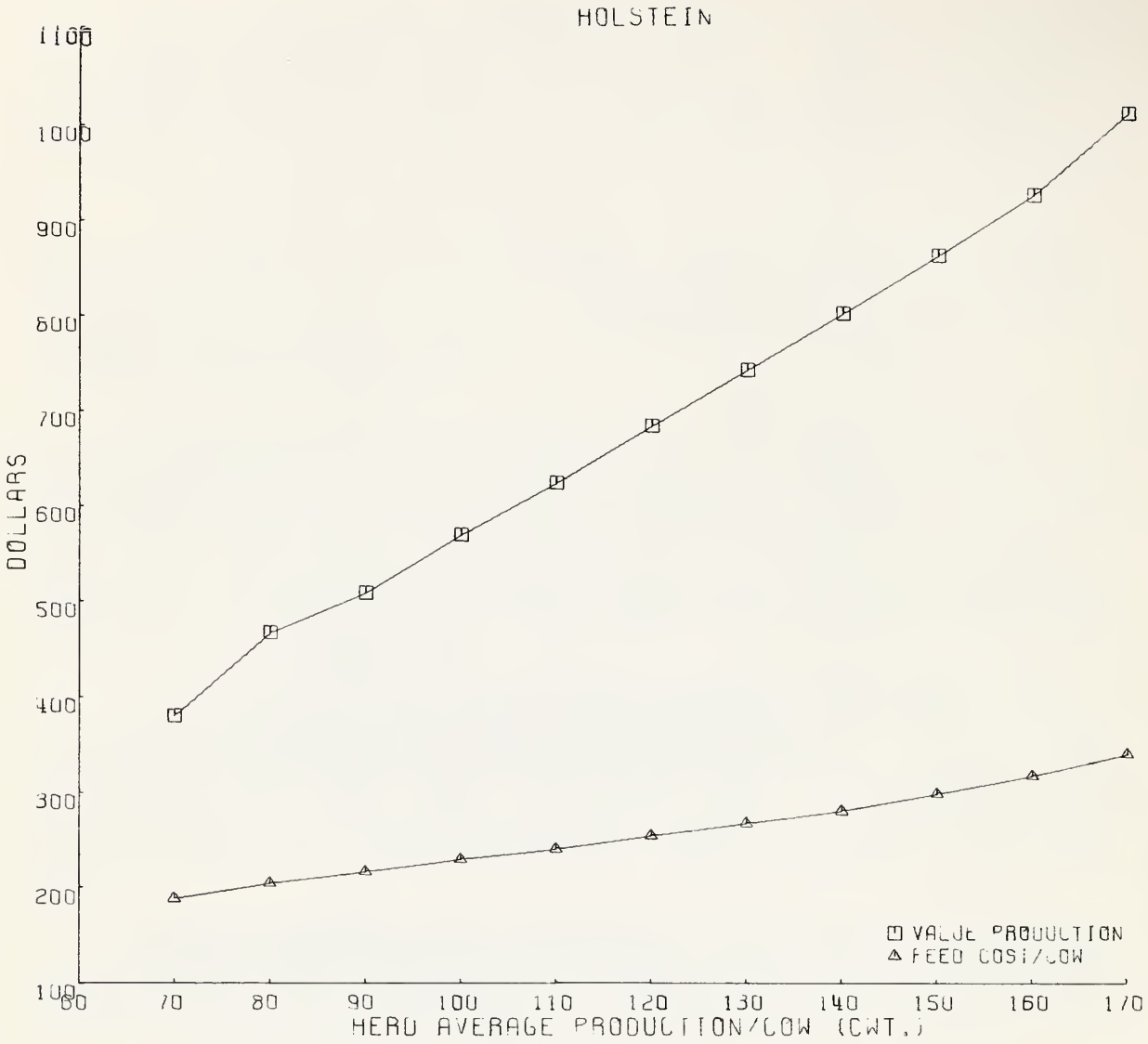

Figure 4.--Relationship of herd average milk yield to value of product and feed cost per cow for Holstein herds on Official DHI test

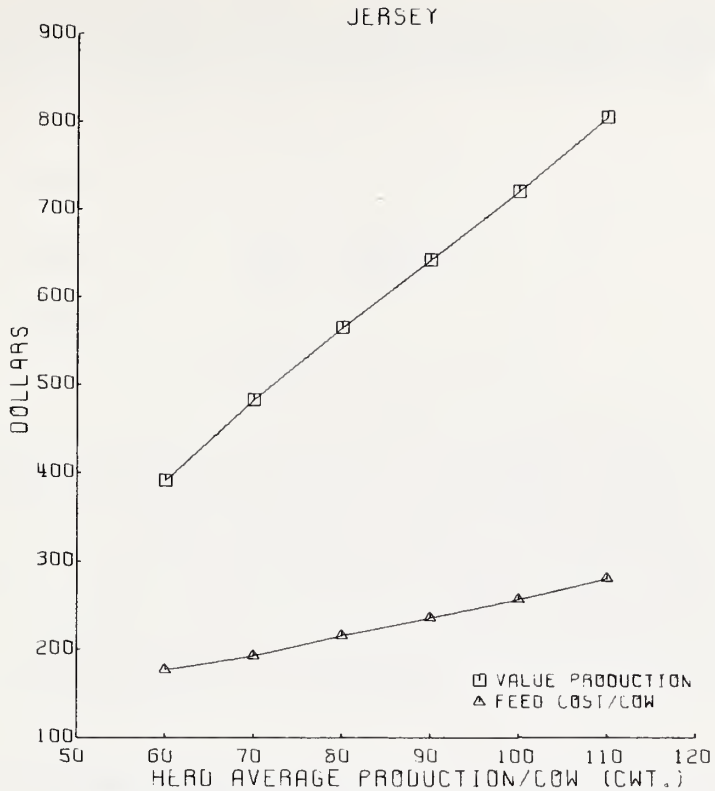

Figure 5.--Relationship of herd average milk yield to value of product and feed cost per cow for Jersey herds on Official DHI test

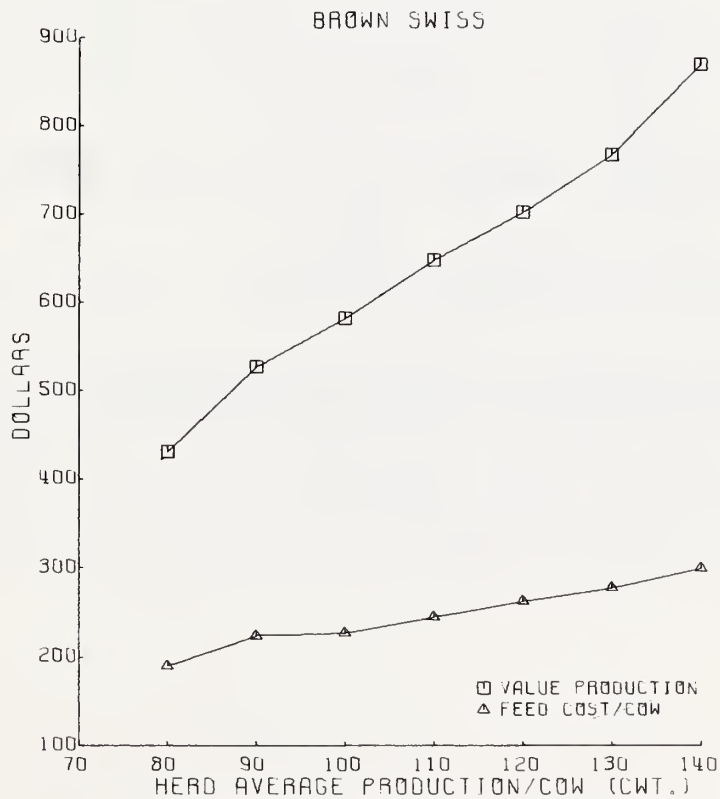

Figure 6.--Relationship of herd average milk yield to value of product and feed cost per cow for Brown Swiss on Official DHI test

have a superiority of approximately 4,500 pounds of milk each over cows not in the two programs, and OS cows, a superiority of 3,900 pounds over cows not on Official DHI test.

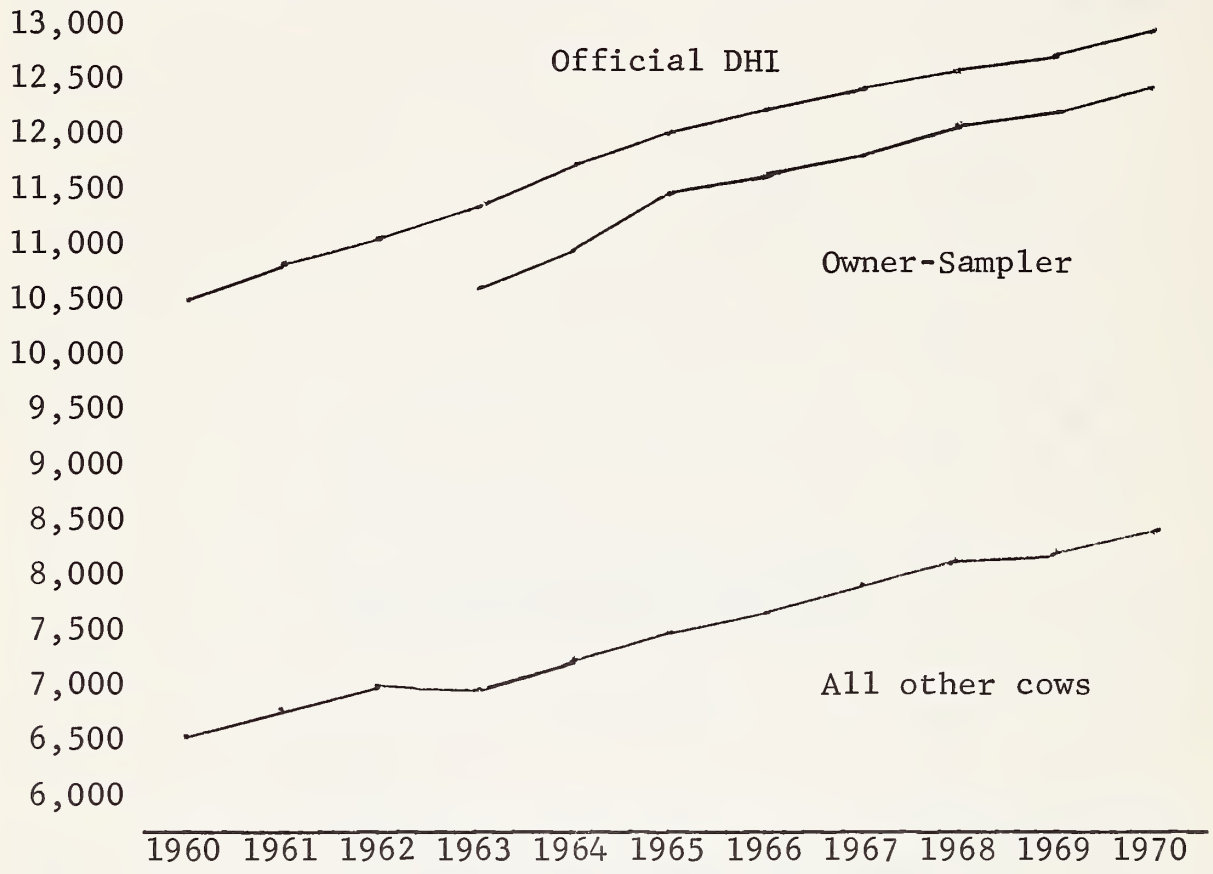

Figure 7.--Comparison of milk production for cows on Official DHI and Owner-Sampler test and for all other cows

Historical summaries of testing programs.--A historical summary of cow numbers and average milk and fat production for the various testing plans is included in the DHIA Participation Report for 1971 (April 1971 Dairy-Herd-Improvement Letter, ARS 44-229). A 14-year summary of Official DHI averages for herds reporting complete information is included as table 9.

A 9-year summary of Owner-Sampler averages (since the first summary was published) for herds reporting complete information is included as table 10.

ERRATA: 1. A revised report on 35,882 fewer artificial inseminations (AI) to dairy cows by dairy bulls in Wisconsin during 1970 was received from Tri-State Breeders Cooperative too late for revision of the June-July 1971 Dairy-Herd-Improvement Letter, ARS 44-233. The corrected AI first services of dairy sires bred to dairy cows are shown in the following tabulation on a national basis, and also for Wisconsin and Tri-State Breeders.

Corrected data for first services to dairy cows bred artificially to dairy bulls in Wisconsin in 1970:

Area or stud	Previously rept. services	New data	Corrected total
	No.	No.	No.
United States	6,729,098	Minus 35,882	6,693,216
Wisconsin	1,236,815	Minus 35,882	1,200,933
Tri-State	357,094	Minus 35,882	321,212

Appropriate values in tables 2, 3, 4, 5, 6, 7, and 8 in the June-July 1971 Dairy-Herd-Improvement Letter, ARS 44-233 are affected by the revised data.

2. Additional information for 24,088 artificial inseminations to beef cows by beef bulls in 1970 for four AI organizations was received November 4, 1971. Data were received from Dr. Harry A. Herman, National Association of Animal Breeders, P.O. Box 1033, Columbia, Missouri 65201 and are as follows:

Area or stud	Previously rept. services		New data	Corrected total
	No.		No.	No.
Atlantic	4,447	Plus	6,279	10,726
Carnation	67,599	Plus	5,757	73,356
All West	26,920	Plus	11,593	38,513
Excelsior	766	Plus	459	1,225
United States	1,234,358	Plus	24,088	1,258,446

Appropriate values in tables 2, 3, 6, 7, and 8 in the June-July 1971 Dairy-Herd-Improvement Letter, ARS 44-233 are affected by the revised data.

3. Table 6, June-July 1971 Dairy-Herd-Improvement Letter, ARS 44-233, has two incorrect values in the column for increase or decrease of beef cows bred artificially. They are the remainder for reported AI activity, but State unknown and services by all-beef studs. The remainder, +15,244, should read +21,682; the remainder, +60,337, should read +53,899.

TABLE 1.--State production averages on a cow-year-basis including all herds-Official DHI[1/]
(USDA-DHIA Herd Summary Data--May 1, 1970-April 30, 1971)

State	Herds	Cow-years[2/]	Cows per herd	Days in milk	Cow-year average production		
					Milk	Fat	Fat
	No.	No.	No.	%	Lb.	%	Lb.
Alabama	256	28,093	109.7	84	10,741	3.86	410
Alaska	3	80	26.5	85	14,414	3.41	493
Arizona	62	15,230	245.7	84	13,505	3.68	491
Arkansas	84	6,586	78.4	85	12,021	3.53	419
California	1,469	345,043	234.9	84	14,309	3.77	533
Colorado	211	17,247	81.7	86	13,241	3.72	489
Connecticut	330	21,330	64.6	85	13,537	3.84	516
Delaware	66	3,893	59.0	86	12,619	3.86	484
Florida	91	17,619	193.6	84	10,245	3.77	380
Georgia	329	32,198	97.9	85	11,734	3.81	442
Hawaii	12	4,133	344.4	79	11,253	3.05	344
Idaho	426	24,893	58.4	86	12,606	3.83	476
Illinois	1,078	48,897	45.4	86	12,503	3.85	478
Indiana	811	37,524	46.3	85	12,317	3.91	476
Iowa	1,440	55,844	38.8	84	11,946	3.81	451
Kansas	712	38,200	53.7	85	12,958	3.72	479
Kentucky	448	23,168	51.7	84	11,699	3.78	437
Louisiana	115	10,893	94.7	83	10,313	3.90	394
Maine	348	17,479	50.2	85	12,900	3.90	499
Maryland	550	38,425	69.9	86	12,542	3.92	488
Massachusetts	348	17,258	49.6	86	13,144	3.97	515
Michigan	1,227	71,337	58.1	86	12,900	3.75	481
Minnesota	2,950	111,914	37.9	86	13,074	3.75	487
Mississippi	239	19,640	82.2	84	10,441	3.93	404
Missouri	523	30,040	57.4	85	11,778	3.79	441
Montana	52	3,693	71.0	86	12,991	3.69	478
Nebraska	383	19,106	49.9	84	11,939	3.82	454
Nevada	28	3,427	122.4	85	12,996	3.81	482
New Hampshire	193	10,981	56.9	85	12,632	3.97	495
New Jersey	283	18,707	66.1	85	12,927	3.85	493
New Mexico	28	8,812	314.7	83	13,333	3.71	487
New York	3,186	179,776	56.4	86	13,705	3.67	500
North Carolina	692	51,412	74.3	86	13,025	3.77	487
North Dakota	115	5,122	44.5	83	11,815	3.68	434
Ohio	1,463	67,491	46.1	86	12,483	3.90	481
Oklahoma	284	20,431	71.9	84	12,545	3.60	447
Oregon	312	25,236	80.9	86	12,568	4.14	511
Pennsylvania	2,818	130,980	46.5	86	13,028	3.89	503
Puerto Rico	21	3,914	186.4	80	7,182	3.26	233
Rhode Island	29	1,619	55.8	84	12,137	3.91	468
South Carolina	245	26,432	107.9	85	11,561	4.02	458
South Dakota	144	6,459	44.9	84	12,588	3.68	460
Tennessee	448	30,068	67.1	85	11,830	3.95	460
Texas	273	27,231	99.7	84	12,397	3.67	447
Utah	340	21,691	63.8	87	12,934	3.72	475
Vermont	683	37,520	54.9	85	12,826	3.91	493
Virginia	824	59,711	72.5	86	12,693	3.76	473
Washington	591	47,374	80.2	86	13,910	3.90	534
West Virginia	184	10,167	55.3	85	12,046	3.83	457
Wisconsin	2,934	139,646	47.6	86	13,282	3.83	506
Wyoming	18	1,494	83.0	83	11,418	3.66	413
U.S. total or average	30,699	1,995,463	65.0	85	13,000	3.76	489

1/ Includes all production data reported.
2/ Rounded to the nearest cow-year.

TABLE 2.--State averages on a cow-year basis-complete herds-Official DHI
(USDA-DHIA Herd Summary Data-May 1, 1970-April 30, 1971)

State	Herds	Cow-years[1/]	Cows per herd	Days in milk	Milk	Fat	Fat	Conc.	Succ. for-age	Dry for-age	Pas-ture days	Value of product	Cost conc.	Feed cost	FC/cwt. milk	Income over feed cost
	No.	No.	No.	%	Lb.	%	Lb.	Cwt.	Cwt.	Cwt.	No.	$	$	$	$	$
Ala----------	167	17,541	105.0	84	10,851	3.86	414	53	84	18	263	739	198	294	2.77	445
Alaska-------	1	20	20.3	86	14,739	3.56	524	44	118	29	---	1,184	229	422	2.86	762
Ark----------	82	4,763	58.1	83	11,920	3.53	415	50	23	39	253	706	162	304	2.56	403
Conn---------	326	20,964	64.3	85	13,553	3.85	517	60	168	18	57	939	226	369	2.74	571
Del----------	66	3,893	59.0	86	12,619	3.86	484	46	161	20	78	833	167	319	2.57	514
Fla----------	78	15,719	201.5	84	10,103	3.81	378	57	72	20	213	750	214	288	2.89	462
Ga-----------	279	27,571	98.8	84	11,723	3.82	442	52	131	14	280	771	199	316	2.73	455
Idaho--------	349	19,809	56.8	86	12,561	3.83	474	44	71	81	44	627	121	255	2.06	373
Ill----------	1,078	48,897	45.4	86	12,503	3.85	478	49	93	32	99	692	130	232	1.88	460
Ind----------	810	37,516	46.3	85	12,318	3.91	476	49	132	33	99	724	141	266	2.20	457
Iowa---------	1,437	55,749	38.8	84	11,948	3.81	451	52	100	38	84	610	134	227	1.94	383
Kans---------	712	38,200	53.7	85	12,958	3.72	479	58	101	45	87	708	163	271	2.12	436
Ky-----------	446	23,073	51.7	84	11,705	3.79	438	44	106	25	191	687	148	266	2.31	421
La-----------	114	10,666	93.6	83	10,379	3.89	395	49	59	18	337	713	176	288	2.84	425
Maine--------	343	17,135	50.0	85	12,853	3.90	497	53	128	34	107	863	206	335	2.63	528
Mass---------	346	16,994	49.1	86	13,128	3.97	515	57	148	29	87	911	219	361	2.79	550
Minn---------	2,943	111,498	37.9	86	13,073	3.75	487	52	115	46	57	662	115	208	1.61	454
Miss---------	239	19,640	82.2	84	10,441	3.93	404	42	97	8	301	659	146	241	2.34	418
Mo-----------	523	30,040	57.4	85	11,778	3.79	441	50	71	36	166	658	155	280	2.41	378
Nebr---------	381	18,793	49.3	84	11,918	3.82	454	50	109	42	62	626	138	234	1.99	392
N. H---------	190	10,676	56.2	85	12,697	3.94	495	48	147	33	71	850	185	338	2.69	512
N. J---------	277	18,374	66.3	85	12,935	3.85	493	51	127	22	87	838	179	347	2.70	491
N. Y---------	3,150	176,684	56.1	86	13,698	3.67	500	50	118	28	86	847	185	317	2.33	531
N. C---------	662	48,803	73.7	86	13,053	3.78	488	55	185	12	114	909	206	334	2.60	575
N. Dak-------	114	5,100	44.7	83	11,799	3.68	433	48	81	64	50	606	109	207	1.80	398
Ohio---------	1,462	67,468	46.1	86	12,482	3.90	480	49	133	35	96	750	141	263	2.14	487
Okla---------	283	20,418	72.1	84	12,548	3.60	447	54	42	63	143	713	159	305	2.47	408
Oreg---------	63	4,849	77.0	86	12,586	4.12	512	45	72	56	119	754	153	298	2.38	456
Pa-----------	2,813	130,735	46.5	86	13,027	3.89	503	52	131	37	110	817	173	313	2.43	504
P. R---------	18	3,232	179.6	80	7,176	3.25	231	32	---	0	365	619	152	243	3.52	376
R. I---------	29	1,619	55.8	84	12,137	3.91	468	50	149	26	83	898	193	353	2.95	545
S. C---------	197	20,918	106.2	85	11,636	3.97	456	48	139	14	294	823	181	314	2.76	508
S. Dak-------	143	6,430	45.0	84	12,581	3.68	460	50	95	50	60	631	124	216	1.73	415
Tenn---------	432	28,358	65.6	85	11,874	3.94	461	47	143	17	161	767	168	297	2.54	470
Tex----------	252	24,525	97.3	84	12,438	3.67	448	56	42	50	227	785	181	312	2.55	473
Vt-----------	668	36,644	54.9	85	12,812	3.91	493	48	91	30	111	841	189	321	2.53	519
Va-----------	817	58,821	72.0	86	12,703	3.76	474	45	167	16	135	832	169	299	2.38	533
Wash---------	353	28,280	80.1	87	13,872	3.89	532	51	66	53	148	801	159	318	2.33	483
W. Va--------	181	10,000	55.2	85	12,049	3.84	458	49	130	24	129	744	174	302	2.53	442
U.S. total or average--	22,824	1,240,414	54.3	85	12,659	3.77	477	51	116	33	120	767	165	287	2.30	480

1/ Rounded to the nearest cow-year.

TABLE 3.--U.S. breed averages on a herd basis—complete herds only—Official DHI
(USDA-DHIA Herd Summary Data—May 1, 1970-April 30, 1971)

Milk level	Herds	Cow-years	Cows per herd	Days in milk	Milk	Fat	Fat	Conc.	Succ. for-age	Dry for-age	Pas-ture days	Value of product	Cost of conc.	Feed cost	FC/cwt. milk	Income over feed cost
Range	No.	No.	No.	%	Lb.	%	Lb.	Cwt.	Cwt.	Cwt.	No.	$	$	$	$	$
Ayrshire																
Under 8,500	20	1,027.6	51.4	79	7,559	3.92	297	33	81	33	126	438	104	192	2.54	246
8,500 - 9,499	43	1,725.6	40.1	81	9,029	3.95	357	39	64	35	133	544	120	216	2.39	328
9,500 - 10,499	75	3,129.5	41.7	83	10,101	3.98	402	41	81	38	133	621	137	246	2.44	375
10,500 - 11,499	105	4,987.1	47.5	83	10,957	3.98	436	44	84	38	123	680	151	262	2.40	417
11,500 - 12,499	70	3,214.7	45.9	85	11,928	3.97	474	47	94	32	115	759	166	283	2.37	476
12,500 - Up	63	2,545.4	40.4	85	13,451	3.94	530	52	81	42	136	857	190	314	2.34	543
Breed average	376	16,629.9	44.2	83	10,984	3.97	436	44	82	37	127	684	151	262	2.40	422
Guernsey																
Under 7,500	81	4,707.6	58.1	81	6,702	4.69	314	32	72	29	156	442	97	188	2.81	254
7,500 - 8,499	168	7,620.0	45.4	85	8,109	4.73	384	36	69	36	147	537	112	212	2.61	326
8,500 - 9,499	284	15,540.2	54.7	85	9,035	4.74	428	40	80	34	135	607	124	228	2.52	380
9,500 - 10,499	357	18,073.8	50.6	86	9,951	4.76	474	43	85	34	127	677	136	244	2.45	433
10,500 - 11,499	235	11,748.8	50.0	87	10,924	4.72	516	46	81	34	137	743	147	258	2.37	485
11,500 - Up	109	4,726.9	43.4	88	12,336	4.71	581	50	85	35	129	845	171	289	2.34	556
Breed average	1,234	62,417.3	50.6	86	9,672	4.73	458	42	80	34	136	654	133	239	2.49	415
Holstein																
Under 7,500	80	5,205.0	65.1	80	6,645	3.71	247	32	66	31	177	392	101	201	3.06	191
7,500 - 8,499	118	7,882.9	66.8	80	8,112	3.69	299	38	83	32	164	479	116	217	2.68	262
8,500 - 9,499	360	19,389.2	53.9	81	9,080	3.67	333	41	89	36	148	521	123	229	2.53	292
9,500 - 10,499	834	48,864.1	58.6	82	10,064	3.68	370	43	96	34	135	582	132	242	2.41	340
10,500 - 11,499	1,659	93,849.9	56.6	84	11,051	3.67	406	46	101	36	127	637	140	253	2.29	384
11,500 - 12,499	2,945	166,603.5	56.6	85	12,037	3.67	442	48	110	36	115	697	149	267	2.22	430
12,500 - 13,499	3,913	218,121.9	55.7	85	13,020	3.68	479	52	114	37	110	756	159	280	2.15	475
13,500 - 14,499	3,978	215,748.6	54.2	86	13,984	3.67	514	54	117	37	103	815	168	293	2.10	522
14,500 - 15,499	2,733	144,525.2	52.9	86	14,953	3.66	548	57	116	39	103	876	183	311	2.08	565
15,500 - 16,499	1,398	74,597.0	53.4	87	15,938	3.65	581	60	115	39	105	941	197	330	2.07	611
16,500 - Up	679	35,036.1	51.6	88	17,241	3.63	626	64	114	41	109	1,028	219	354	2.05	674
Breed average	18,697	1,029,823.4	55.1	85	13,284	3.67	487	52	111	37	112	774	164	286	2.17	488
Jersey																
Under 6,500	67	3,614.2	53.9	81	5,858	5.03	295	31	43	25	196	391	99	177	3.04	213
6,500 - 7,499	135	6,720.7	49.8	83	7,093	5.05	358	35	50	27	180	483	111	193	2.73	290
7,500 - 8,499	296	17,564.9	59.3	84	8,036	5.05	406	38	57	28	178	565	124	216	2.68	349
8,500 - 9,499	314	18,555.6	59.1	85	8,990	5.08	456	41	64	28	159	642	140	236	2.62	407
9,500 - 10,499	232	13,132.9	56.6	86	9,983	5.06	505	44	70	30	151	720	156	257	2.57	463
10,500 - Up	107	5,960.7	55.7	87	11,125	4.98	554	49	71	29	137	805	177	281	2.53	524
Breed average	1,151	65,549.0	56.9	85	8,738	5.05	441	40	61	28	165	620	137	230	2.65	389
Brown Swiss																
Under 8,500	21	728.7	34.7	79	7,799	4.08	318	35	89	39	97	431	92	190	2.47	241
8,500 - 9,499	33	1,354.9	41.1	83	9,072	4.11	373	41	86	37	126	527	122	224	2.48	302
9,500 - 10,499	88	2,971.7	33.8	84	10,045	4.11	413	45	89	36	111	582	127	227	2.26	355
10,500 - 11,499	96	3,563.1	37.1	85	11,044	4.12	455	47	106	39	102	648	138	245	2.21	403
11,500 - 12,499	80	3,133.5	39.2	86	11,978	4.09	490	51	97	41	124	702	148	263	2.20	439
12,500 - 13,499	71	2,370.4	33.4	86	12,947	4.09	530	52	87	40	126	767	158	278	2.15	489
13,500 - Up	44	1,977.8	45.0	88	14,250	4.07	580	55	110	34	103	869	177	300	2.10	569
Breed average	433	16,100.1	37.2	85	11,344	4.10	465	48	96	38	114	667	141	251	2.23	415

TABLE 3.--U.S. breed averages on a herd basis—complete herds only—Official DHI--Continued
(USDA-DHIA Herd Summary Data—May 1, 1970-April 30, 1971)

Milk levels	Herds	Cow-years	Cows per herd	Days in milk	Milk	Fat	Fat	Conc.	Succ. for-age	Dry for-age	Pas-ture days	Value of product	Cost of conc.	Feed cost	FC/cwt. milk	Income over feed cost
Range	No.	No.	No.	%	Lb.	%	Lb.	Cwt.	Cwt.	Cwt.	No.	$	$	$	$	$
Milking Shorthorn																
Under 8,500	26	644.0	24.8	79	7,711	3.70	286	32	48	42	162	401	85	188	2.45	212
8,500 - 9,499	18	450.2	25.0	80	9,070	3.74	339	36	53	43	143	452	92	179	1.97	273
9,500 - 10,499	13	412.4	31.7	83	9,905	3.73	369	39	58	42	147	507	100	207	2.09	300
10,500 - 11,499	8	240.3	30.0	83	10,990	3.74	412	46	28	42	229	576	111	217	1.97	359
11,500 - 12,499	--	-----	----	--	------	----	---	--	---	--	---	---	---	---	----	---
12,500 - 13,499	2	62.8	31.4	87	13,037	3.70	482	55	115	30	68	716	176	263	2.03	453
13,500 - Up	1	27.0	27.0	83	14,048	4.34	609	55	51	42	184	698	148	246	1.75	452
Breed average	68	1,836.7	27.0	81	9,126	3.73	341	37	51	42	160	469	97	196	2.18	273
Mixed																
Under 7,500	29	1,975.9	68.1	81	6,675	4.19	280	37	63	22	207	457	124	212	3.17	246
7,500 - 8,499	52	3,834.6	73.7	82	8,095	4.22	341	40	69	23	204	533	128	218	2.70	315
8,500 - 9,499	104	6,713.6	64.6	83	9,042	4.18	378	40	74	30	190	573	135	241	2.67	332
9,500 - 10,499	119	6,406.8	53.8	84	10,007	4.03	404	44	78	32	190	624	144	251	2.51	373
10,500 - 11,499	160	8,792.4	55.0	85	10,977	3.97	436	46	90	38	165	683	153	275	2.50	408
11,500 - 12,499	145	8,105.7	55.9	86	11,979	3.94	472	49	105	36	143	737	162	285	2.38	452
12,500 - 13,499	104	5,224.3	50.2	86	13,001	3.89	505	50	109	39	135	801	167	302	2.32	499
13,500 - 14,499	75	3,668.8	48.9	86	13,968	3.81	533	53	112	43	126	850	182	320	2.29	530
14,500 - Up	49	2,195.7	44.8	87	15,362	3.78	580	60	122	39	125	921	199	338	2.20	583
Breed average	837	46,917.8	56.1	85	11,220	3.99	445	47	93	35	162	697	155	274	2.48	422

TABLE 4.--U.S. average income per cow by milk production levels for five breeds, 1968 through 1971

Avg.prod. level in pounds	Income per cow ($)			
	1968	1969	1970	1971
		Ayrshire		
9,000	53	92	100	112
10,000	83	125	133	131
11,000	99	140	157	155
12,000	137	168	178	193
13,000+	141	221	241	229
		Guernsey		
8,000	80	104	124	114
9,000	114	150	159	152
10,000	129	179	193	189
11,000	163	201	226	227
12,000+	192	238	264	267
		Holstein		
10,000	62	90	94	98
11,000	84	118	131	131
12,000	105	145	163	163
13,000	128	175	192	195
14,000	151	205	225	229
15,000	177	232	256	254
16,000	201	259	282	281
17,000+	224	287	312	320
		Jersey		
7,000	75	103	108	97
8,000	107	138	141	133
9,000	142	166	185	171
10,000	153	194	214	206
11,000+	187	224	230	243
		Brown Swiss		
9,000	40	73	87	78
10,000	73	97	91	128
11,000	93	128	150	158
12,000	132	173	191	176
13,000	156	197	219	211
14,000+	176	249	305	269

TABLE 5.--State production averages on a cow-year-basis--including all herds--Owner-Sampler[1/]
(USDA-DHIA Herd Summary Data--May 1, 1970-April 30, 1971)

State	Herds	Cow-years[2/]	Cows per herd	Days in milk	Cow-year average production		
					Milk	Fat	Fat
	No.	No.	No.	%	Lb.	%	Lb.
Alabama	8	1,043	130.4	88	10,516	3.62	382
Alaska	7	288	41.1	83	12,796	3.55	457
Arkansas	58	2,600	44.8	83	11,305	3.68	409
California	61	4,059	66.5	84	11,346	4.21	465
Colorado	13	660	50.8	86	12,813	3.63	463
Connecticut	48	2,193	45.7	84	13,052	3.83	496
Delaware	3	52	17.4	83	10,795	3.98	423
Florida	22	6,462	293.7	84	10,457	3.68	381
Georgia	4	369	92.2	85	13,785	3.70	510
Hawaii	1	535	534.7	73	11,655	3.02	352
Idaho	21	1,132	53.9	86	13,410	3.49	462
Illinois	247	8,872	35.9	84	12,317	3.74	459
Indiana	74	3,021	40.8	85	12,828	3.73	476
Iowa	794	24,369	30.7	83	11,521	3.71	425
Kansas	120	5,040	42.0	84	12,336	3.65	449
Kentucky	31	1,509	48.7	84	11,626	3.63	419
Louisiana	3	316	105.3	83	11,272	3.30	372
Maine	65	2,619	40.3	86	12,263	3.83	467
Maryland	61	2,901	47.6	84	12,301	3.87	473
Massachusetts	38	1,308	34.4	85	12,406	3.80	471
Michigan	825	33,412	40.5	86	12,610	3.72	468
Minnesota	1,735	53,526	30.9	84	12,271	3.72	454
Mississippi	3	330	110.0	83	9,436	4.16	387
Missouri	144	6,920	48.1	84	11,572	3.64	419
Montana	17	1,479	87.0	84	12,445	3.58	445
Nebraska	58	2,564	44.2	85	12,313	3.63	446
Nevada	4	1,287	321.8	84	14,406	3.02	432
New Hampshire	36	1,387	38.5	83	11,781	3.87	452
New Jersey	16	843	52.7	85	12,015	3.77	450
New York	1,649	68,470	41.5	85	12,907	3.63	466
North Carolina	31	1,621	52.3	86	13,155	3.75	492
North Dakota	14	569	40.6	83	11,978	3.68	440
Ohio	307	11,150	36.3	85	12,453	3.73	462
Oklahoma	36	1,836	51.0	83	12,160	3.48	423
Oregon	45	2,073	46.1	85	11,020	4.29	464
Pennsylvania	785	26,835	34.2	85	12,481	3.82	475
South Carolina	4	360	90.1	85	10,088	4.16	405
South Dakota	279	9,809	35.2	82	11,678	3.56	414
Tennessee	5	183	36.5	86	10,695	3.78	405
Texas	26	2,573	98.9	83	12,523	3.47	433
Utah	16	609	38.1	86	13,216	3.71	484
Vermont	181	7,992	44.2	84	11,609	3.95	452
Virginia	40	1,941	48.5	85	12,374	3.61	445
Washington	20	1,083	54.2	84	12,767	4.10	512
West Virginia	22	808	36.7	84	11,260	3.87	431
Wisconsin	8,589	302,906	35.3	85	12,514	3.74	466
Wyoming	3	170	56.5	84	10,594	3.57	378
U.S. total or average	16,569	612,080	36.9	84	12,413	3.71	460

1/ Includes all production data reported.
2/ Rounded to the nearest cow-year.

TABLE 6.--State averages on a cow-year basis—complete herds—Owner-Sampler
(USDA-DHIA Herd Summary Data—May 1, 1970-April 30, 1971)

State	Herds	Cow-years[1/]	Cows per herd	Days in milk	Milk	Fat	Fat	Conc.	Succ. for-age	Dry for-age	Pas-ture days	Value of product	Cost conc.	Feed cost	FC/cwt. milk	Income over feed cost
	No.	No.	No.	%	Lb.	%	Lb.	Cwt.	Cwt.	Cwt.	No.	$	$	$	$	$
Ala----------	5	283	56.7	87	10,900	3.68	406	52	72	9	332	715	192	285	2.69	430
Ark----------	58	2,600	44.8	83	11,305	3.68	409	50	26	33	244	649	167	274	2.43	375
Conn---------	48	2,193	45.7	84	13,052	3.83	496	54	110	22	77	895	204	352	2.74	543
Del----------	3	52	17.4	83	10,795	3.98	423	34	114	21	153	682	114	257	2.41	425
Fla----------	19	5,712	300.6	84	10,268	3.68	374	66	36	31	262	751	232	303	3.00	448
Ga-----------	1	73	72.7	88	14,652	3.69	541	50	260	4	240	963	197	385	2.63	578
Idaho--------	16	845	52.8	85	12,921	3.50	446	43	33	90	45	630	120	249	1.99	380
Ill----------	173	6,799	39.3	84	12,447	3.73	464	51	92	32	102	667	128	228	1.84	439
Ind----------	74	3,021	40.8	85	12,828	3.73	476	48	138	32	80	734	142	256	2.02	478
Iowa---------	794	24,369	30.7	83	11,521	3.71	425	48	84	40	93	559	118	207	1.83	352
Kans---------	120	5,040	42.0	84	12,336	3.65	449	54	80	49	102	642	149	252	2.06	390
Ky-----------	30	1,456	48.5	84	11,562	3.65	419	45	103	26	203	666	158	264	2.30	402
La-----------	3	316	105.3	83	11,272	3.30	372	47	13	25	316	751	154	250	2.21	501
Maine--------	65	2,619	40.3	86	12,263	3.83	467	46	120	33	102	801	180	309	2.54	492
Mass---------	38	1,308	34.4	85	12,406	3.80	471	52	131	36	109	840	204	342	2.78	498
Minn---------	1,729	53,380	30.9	84	12,270	3.72	454	49	100	49	70	603	107	198	1.63	405
Miss---------	3	330	110.0	83	9,436	4.16	387	38	98	8	337	646	127	212	2.27	434
Mo-----------	143	6,905	48.3	84	11,583	3.64	419	49	62	39	170	619	151	272	2.36	346
Nebr---------	58	2,564	44.2	85	12,313	3.63	446	48	90	48	60	613	129	226	1.86	387
N. H---------	35	1,365	39.0	83	11,870	3.87	456	45	109	40	88	780	174	305	2.60	475
N. J---------	16	843	52.7	85	12,015	3.77	450	44	97	16	102	779	164	341	2.87	438
N. Y---------	1,627	67,353	41.4	85	12,919	3.63	467	46	91	33	100	787	173	295	2.30	492
N. C---------	30	1,526	50.9	86	13,337	3.70	494	55	176	10	156	921	210	333	2.52	588
N. Dak-------	13	527	40.5	83	12,033	3.68	442	44	84	49	66	564	105	199	1.69	365
Ohio---------	306	11,128	36.4	85	12,446	3.73	461	48	128	36	89	731	138	256	2.08	475
Okla---------	36	1,836	51.0	83	12,160	3.48	423	51	11	63	197	678	151	291	2.41	387
Oreg---------	7	345	49.2	86	11,671	3.94	457	38	93	62	104	606	124	258	2.22	347
Pa-----------	783	26,725	34.1	85	12,475	3.82	475	49	109	41	129	769	164	297	2.41	471
S. C---------	3	301	100.3	85	9,923	4.23	403	37	120	12	133	720	140	236	2.38	484
S. Dak-------	279	9,809	35.2	82	11,678	3.56	414	47	83	49	75	561	111	201	1.74	360
Tenn---------	5	183	36.5	86	10,695	3.78	405	41	135	21	167	678	135	260	2.43	418
Tex----------	23	2,112	91.8	84	12,676	3.47	438	59	19	59	191	795	203	337	2.67	458
Vt-----------	179	7,892	44.1	84	11,625	3.95	452	42	74	33	126	761	167	293	2.55	468
Va-----------	39	1,886	48.4	85	12,371	3.61	445	49	165	16	157	777	178	310	2.56	467
Wash---------	10	468	46.8	86	11,462	4.58	515	53	69	48	167	724	145	295	2.59	429
W. Va--------	21	729	34.7	84	11,038	3.87	422	44	91	28	144	687	162	287	2.62	399
U.S. total or average--	6,792	254,890	37.5	84	12,292	3.70	452	48	93	39	106	696	147	258	2.11	439

1/ Rounded to the nearest cow-year.

TABLE 7.--U.S. breed averages on a herd basis —complete herds only—Owner-Sampler
(USDA-DHIA Herd Summary Data—May 1, 1970-April 30, 1971)

Milk level	Herds	Cow-years	Cows per herd	Days in milk	Milk	Fat	Fat	Conc.	Succ. forage	Dry forage	Pasture days	Value of product	Cost of conc.	Feed cost	FC/cwt. milk	Income over feed cost
Range	No.	No.	No.	%	Lb.	%	Lb.	Cwt.	Cwt.	Cwt.	No.	$	$	$	$	$
Ayrshire																
Under 8,500	10	243.9	24.4	78	7,324	4.02	294	30	40	42	101	419	97	188	2.60	231
8,500 - 9,499	8	228.0	28.5	81	9,115	3.82	348	34	23	38	159	534	112	205	2.25	329
9,500 - 10,499	17	427.4	25.1	84	10,074	3.90	393	41	58	45	134	571	126	223	2.21	348
10,500 - 11,499	17	534.0	31.4	82	10,971	3.93	432	41	45	41	131	659	144	247	2.26	412
11,500 - 12,499	6	185.9	31.0	82	11,792	3.92	462	44	62	42	111	665	150	241	2.05	424
12,500 - Up	6	145.2	24.2	85	13,133	3.93	516	55	52	36	122	801	196	293	2.23	509
Breed average	64	1,764.4	27.6	82	10,210	392	400	40	47	41	128	596	133	230	2.28	367
Guernsey																
Under 7,500	22	606.7	27.6	82	6,971	4.64	323	33	40	49	97	404	86	171	2.45	233
7,500 - 8,499	41	1,559.4	38.0	85	8,028	4.61	370	35	47	39	138	489	94	177	2.21	312
8,500 - 9,499	64	1,824.4	28.5	84	8,968	4.66	417	38	52	39	138	552	107	198	2.21	353
9,500 - 10,499	51	1,595.0	31.3	85	9,959	4.57	455	42	63	42	128	595	112	199	1.99	396
10,500 - 11,499	23	598.8	26.0	85	10,905	4.56	498	47	48	37	130	657	132	219	2.01	438
11,500 - Up	9	273.7	30.4	85	13,143	3.91	512	53	92	37	120	744	155	255	1.94	489
Breed average	210	6,458.0	30.7	85	9,207	4.58	420	39	54	40	129	554	108	196	2.15	358
Holstein																
Under 7,500	35	992.3	28.4	80	6,876	3.76	258	28	48	41	142	356	82	170	2.49	185
7,500 - 8,499	59	1,928.0	32.7	81	8,069	3.69	298	33	72	40	127	427	95	189	2.34	238
8,500 - 9,499	182	6,287.3	34.5	80	9,058	3.66	331	37	72	43	117	467	98	197	2.17	270
9,500 - 10,499	431	14,900.8	34.6	82	10,094	3.64	368	40	69	44	119	532	115	215	2.13	318
10,500 - 11,499	843	34,105.6	40.5	83	11,019	3.65	402	45	85	42	109	595	127	230	2.09	364
11,500 - 12,499	1,195	45,700.0	38.2	84	12,032	3.65	439	47	91	42	101	655	135	244	2.03	411
12,500 - 13,499	1,379	52,921.7	38.4	85	12,996	3.64	473	50	92	43	101	713	147	257	1.98	456
13,500 - 14,499	1,011	37,930.3	37.5	85	13,971	3.63	507	53	94	43	99	771	157	270	1.93	501
14,500 - 15,499	503	19,288.7	38.3	86	14,945	3.62	541	57	97	41	104	850	179	297	1.99	553
15,500 - 16,499	191	7,339.3	38.4	86	15,934	3.59	572	61	93	41	98	911	199	316	1.98	595
16,500 - Up	73	2,595.7	35.6	87	17,254	3.60	620	63	104	38	98	989	214	341	1.98	649
Breed average	5,902	223,989.7	37.9	84	12,580	3.64	457	49	89	42	104	690	144	253	2.02	437
Jersey																
Under 6,500	10	292.0	29.2	81	5,824	5.05	295	25	33	36	119	386	79	160	2.75	225
6,500 - 7,499	32	876.8	27.4	83	7,098	5.02	356	31	48	28	139	473	98	182	2.56	291
7,500 - 8,499	52	1,761.2	33.9	84	7,992	4.94	395	37	32	40	131	530	114	190	2.39	340
8,500 - 9,499	48	1,612.6	33.6	84	8,940	4.88	436	38	44	38	135	599	130	220	2.46	379
9,500 - 10,499	34	1,252.5	36.8	86	9,909	4.94	490	43	63	29	130	691	146	244	2.46	447
10,500 - Up	13	427.5	32.9	86	11,351	4.58	518	48	70	31	146	775	186	279	2.46	496
Breed average	189	6,222.6	32.9	84	8,543	4.92	419	37	46	35	134	576	124	211	2.47	365
Brown Swiss																
Under 8,500	7	133.9	19.1	79	7,575	4.03	305	44	38	54	92	383	105	189	2.50	194
8,500 - 9,499	10	309.5	31.0	84	9,356	4.00	374	40	65	52	123	532	106	204	2.18	328
9,500 - 10,499	11	377.7	34.3	85	9,992	4.09	408	43	73	47	105	545	109	206	2.06	339
10,500 - 11,499	15	349.7	23.3	84	11,095	4.01	444	49	81	39	80	606	122	219	1.97	386
11,500 - 12,499	5	155.5	31.1	86	11,937	4.03	481	54	104	37	106	631	145	229	1.91	402
12,500 - 13,499	8	202.5	25.3	88	12,817	3.99	511	46	98	39	105	740	145	258	2.02	481
13,500 - Up	3	85.7	28.6	84	14,783	3.85	570	53	58	25	163	906	199	312	2.11	594
Breed average	59	1,614.5	27.4	84	10,669	4.01	428	46	75	44	103	591	124	221	2.10	370

TABLE 7.--U.S. breed averages on a herd basis—complete herds only—Owner-Sampler--Continued
(USDA-DHIA Herd Summary Data—May 1, 1970-April 30, 1971)

Milk level	Herds	Cow-years	Cows per herd	Days in milk	Milk	Fat	Fat	Conc.	Succ. for-age	Dry for-age	Pas-ture days	Value of product	Cost of conc.	Feed cost	FC/cwt. milk	Income over feed cost
Range	No.	No.	No.	%	Lb.	%	Lb.	Cwt.	Cwt.	Cwt.	No.	$	$	$	$	$
Milking Shorthorn																
Under 8,500	4	70.2	17.6	77	7,135	3.71	265	28	47	74	75	384	67	159	2.18	225
8,500 - 9,499	--	----	----	--	-----	----	---	--	--	--	---	---	--	---	----	---
9,500 - 10,499	1	21.3	21.3	85	9,718	3.88	377	26	68	44	152	490	75	144	1.48	346
Breed average	5	91.5	18.3	78	7,652	3.75	287	27	51	68	90	405	68	156	2.04	249
Mixed																
Under 7,500	24	1,018.6	42.4	79	6,387	4.25	272	35	37	35	194	380	107	188	2.96	191
7,500 - 8,499	19	888.1	46.7	83	8,051	4.27	344	38	56	34	146	459	106	189	2.35	270
8,500 - 9,499	29	1,908.8	65.8	83	9,082	4.13	375	41	77	37	141	521	126	220	2.42	301
9,500 - 10,499	51	1,676.1	32.9	83	10,047	3.95	397	43	63	41	162	577	135	239	2.38	338
10,500 - 11,499	71	2,882.6	40.6	84	10,998	3.86	424	47	82	41	136	650	148	260	2.36	390
11,500 - 12,499	66	2,474.8	37.5	84	11,977	3.87	463	47	96	42	125	708	145	263	2.20	445
12,500 - 13,499	53	1,881.8	35.5	86	12,940	3.85	498	52	91	45	134	783	168	300	2.32	484
13,500 - 14,499	31	1,286.1	41.5	86	13,926	3.83	533	56	124	40	106	841	181	314	2.26	527
14,500 - Up	9	314.1	34.9	85	14,894	3.77	562	63	128	37	94	906	189	328	2.20	578
Breed average	353	14,331.0	40.6	84	11,062	3.94	433	47	83	41	139	654	146	258	2.36	396

TABLE 8.--Comparison of production for cows on Official DHI and Owner-Sampler testing and for all other cows

Testing years 2/	Official DHI					Owner-Sampler					All other cows 1/			Superiority of DHI cows		Superiority of O.-S. cows	
	Herds	Cow-years	Percent of all cows 3/	Milk	Fat	Herds	Cow-years	Percent of all cows 3/	Milk	Fat	Average cow-years 4/	Milk	Fat	Milk	Fat	Milk	Fat
	No.	No.	%	Lb.	Lb.	No.	No.	%	Lb.	Lb.	No.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.
1930	27,888	507,549	2.35	7,642	303	------	-------	----	-----	---	21,710,451	5/4,435	5/174	3,207	129	-----	---
1940	27,948	676,141	2.91	8,133	333	------	-------	----	-----	---	22,994,859	4,519	179	3,614	152	-----	---
1950	40,100	1,088,872	4.94	9,172	370	------	-------	----	-----	---	20,855,128	5,113	202	4,059	168	-----	---
1959-60	41,293	1,746,752	9.76	10,561	409	24,274	615,899	3.44	-----	---	6/15,345,349	7/6,522	7/244	4,039	165	-----	---
1960-61	42,558	6/1,867,469	10.66	10,796	418	24,498	655,885	3.74	-----	---	6/14,855,646	6,721	251	4,075	167	-----	---
1961-62	42,034	1,958,355	11.36	11,032	426	24,954	698,302	4.05	-----	---	6/14,385,843	6,919	257	4,113	169	-----	---
1962-63	41,937	2,006,534	11.91	11,286	434	25,376	726,478	4.31	10,606	396	13,817,988	8/6,844	8/255	4,442	179	3,762	141
1963-64	40,670	2,010,144	12.36	11,685	447	25,598	752,229	4.63	10,885	404	13,206,127	7,148	263	4,537	184	3,737	141
1964-65	40,075	2,087,581	13.32	11,976	457	26,604	818,406	5.22	11,402	423	12,409,513	7,352	270	4,624	187	4,050	153
1965-66	38,879	2,058,592	13.77	12,127	462	26,259	839,839	5.62	11,472	425	11,625,070	7,521	276	4,606	186	3,951	149
1966-67	37,683	2,098,919	15.22	12,307	468	25,439	825,127	5.98	11,607	432	10,872,954	7,719	282	4,588	186	3,888	150
1967-68	36,869	2,131,929	16.06	12,397	471	25,143	847,485	6.39	11,847	441	10,290,086	7,923	288	4,474	183	3,924	153
1968-69	35,617	2,138,953	16.65	12,553	476	24,359	842,330	6.56	11,932	444	9,884,217	8,088	293	4,465	183	3,844	151
1969-70	34,308	2,122,011	16.87	12,750	483	23,281	839,343	6.67	12,185	453	9/9,639,646	9/8,359	9/300	4,491	183	3,926	153
1970-71	33,996	2,218,402	17.83	13,000	489	22,581	836,751	6.72	12,413	460	(10/)	(10/)	(10/)	(10/)	(10/)	(10/)	(10/)

1/ Derived from U.S. cow population and production figures, excluding heifers not fresh—published in Dairy Statistics, Economic Research Service, USDA, and Milk Production, Statistical Reporting Service, USDA.

2/ The year for which DHIA enrollment is given. For multiple years, the second year is the year of enrollment. Multiple years are given to match the National DHIA testing year after it changed to May 1—April 30.

3/ Through 1965-66, percentages were calculated by using U.S. calendar year cow numbers for the year previous to the stated year (second year when multiple); for example: January 1, 1966 Official DHI enrollment of 2,058,592 cows is 13.77 percent of the 1965 U.S. total of 14,954,000 cows. From 1966-67 through 1968-69, inclusive, the percentages were calculated by using U.S. cow numbers for December of the year previous to the stated year; for example: January 1, 1967 Official DHI enrollment of 2,098,919 cows is 15.2 percent of the December 1966 U.S. total of 13,793,000 cows. From 1969-70, the percentages were calculated by using U.S. cow numbers for January 1 of the second year--the same as for Official DHI enrollment. The January 1 number of milk cows and heifers that have calved in the U.S. was first available in 1970. Data were taken from Milk Production, February 1971, Statistical Reporting Service, USDA.

4/ The figures given for years 1930, 1940, and 1950 are the remainder of the U.S. cows-excluding-heifers-not-fresh after subtracting Official DHI cows for the stated year. The figures for 1959-60 through the end of the table are calculated as in the following example: 1959 U.S. cows plus 1960 cows divided by two, minus Official DHI cows, January 1, 1960, minus Owner-Sampler cows, January 1, 1960.

5/ For 1930, 1940, and 1950, U.S. cow numbers for each year were multiplied by their average production that year; January 1 enrollment of Official DHI cows was multiplied by the average Official DHI production for the year, and this production was subtracted from total production of U.S. cows for the year to obtain the production for all other cows. The number of all other cows was obtained by subtracting January 1, Official DHI cows from U.S. cows for the year. Production averages for all other cows were obtained by dividing production values by cow numbers.

6/ Values are corrections of values appearing in the Dairy-Herd-Improvement Letter, ARS 44-226, March 1971, table 1.

7/ For 1959-60 through 1961-62, production for all other cows was calculated as in the following example: For 1959-60, U.S. milk production for 1959 and 1960 was averaged. Official DHI milk production for 1959-60 was subtracted. Then that figure was divided by the average cow years calculated as explained in footnote 4 to get average milk production for all other cows. Fat production for all other cows was calculated in the same manner. Owner-Sampler production was first tabulated by USDA for 1962-63.

8/ From 1962-63 on, production of all other cows was calculated as explained above, except that Owner-Sampler cow and production totals as well as Official DHI totals were subtracted from U.S. values.

9/ Preliminary.

10/ Not available because of the need for 1971 U.S. production figures.

TABLE 9.--Summary of Official DHI cow-year averages for herds reporting complete data (1955-56 through 1970-71)

Testing year	Herds	Cow-years	Cows per herd	Days in milk	Milk	Fat	Fat	Conc.	Succ. forage	Dry forage	Pasture days	Value of product	Cost of conc.	Feed cost	FC/cwt. milk	Income over feed cost
	No.	No.	No.	%	Lb.	%	Lb.	Cwt.	Cwt.	Cwt.	No.	$	$	$	$	$
1955-56	28,254	849,344	30.1	--	9,470	3.93	372	29	64	39	174	433	86	181	1.91	252
1956-57	27,133	863,275	31.8	--	9,621	3.92	377	30	66	39	173	448	88	183	1.90	265
1957-58	27,525	900,269	32.7	--	9,787	3.91	383	31	69	40	171	462	92	190	1.94	272
1958-59	27,796	902,074	32.5	--	10,042	3.89	391	33	75	40	174	475	93	195	1.94	280
1959-60	23,220	795,892	34.3	--	10,045	3.89	391	33	76	40	169	479	93	196	1.95	283
1960-61	18,644	689,710	37.0	--	10,048	3.88	390	32	78	39	163	485	94	198	1.97	287
1961-62	22,853	882,827	38.6	--	10,676	3.87	413	36	82	40	175	502	103	207	1.94	295
1962-63	27,093	1,089,290	40.2	84	10,983	3.85	423	39	92	40	156	501	113	222	2.02	279
1963-64	27,893	1,173,099	42.1	84	11,428	3.84	439	42	98	38	151	521	120	237	2.07	284
1964-65	28,237	1,229,676	43.5	85	11,744	3.82	449	44	102	38	151	539	127	244	2.08	295
1965-66	28,013	1,260,621	45.0	85	11,885	3.81	453	45	108	36	114	559	133	256	2.15	303
1966-67	27,483	1,282,357	46.7	85	12,030	3.82	459	47	113	36	1/124	631	143	265	2.20	366
1967-68	25,447	1,257,600	49.4	85	12,121	3.81	462	48	120	34	134	667	149	271	2.27	395
1968-69	25,208	1,271,983	50.5	85	12,223	3.80	465	49	2/122	33	132	700	146	266	2.21	434
1969-70	23,130	1,227,860	53.1	85	12,428	3.79	471	50	124	32	129	736	153	273	2.23	463
1970-71	22,824	1,240,414	54.3	85	12,659	3.77	477	51	116	33	120	767	165	287	2.30	480

1/ Data unavailable. Average of adjacent years used.
2/ Some data unavailable. Figure includes calculated averages for States missing data.

TABLE 10.--Summary of Owner-Sampler cow-year averages for herds reporting complete data (1962-63 through 1970-71) 1/

Testing year	Herds	Cow-years	Cows per herd	Days in milk	Milk	Fat	Fat	Conc.	Succ. forage	Dry forage	Pasture days	Value of product	Cost of conc.	Feed cost	FC/cwt. milk	Income over feed cost
	No.	No.	No.	%	Lb.	%	Lb.	Cwt.	Cwt.	Cwt.	No.	$	$	$	$	$
1962-63	4,165	136,781	32 8	83	10,785	3.72	402	37	83	46	147	460	113	219	2.03	241
1963-64	3,033	80,172	26.4	83	10,987	3.74	411	40	80	44	143	427	103	204	1.86	223
1964-65	6,355	197,385	31 0	84	11,470	3.72	427	41	89	44	2/137	486	119	228	1.99	258
1965-66	7,096	224,616	31.6	84	11,574	3.72	430	42	95	42	2/137	499	121	237	2.05	262
1966-67	7,537	243,943	32.4	84	11,645	3.72	433	43	98	43	2/137	563	130	242	2.08	321
1967-68	5,928	212,380	35.8	84	11,834	3.72	440	44	103	40	130	615	142	259	2.21	357
1968-69	7,614	263,703	34.6	84	11,953	3.71	443	46	2/104	41	123	633	133	243	2.05	391
1969-70	7,134	259,195	36.3	84	12,102	3.69	446	47	104	40	116	666	139	249	2.08	417
1970-71	6,792	254,890	37.5	84	12,292	3.68	452	48	93	39	106	696	147	258	2.11	439

1/ Owner-Sampler records were first tabulated by Dairy Herd Improvement Investigations, USDA in 1964 for the 1962-63 testing year.
2/ Data unavailable. Average of adjacent years used.

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